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ABSTRACT

This study focused on using technology to supplement a phonics based reading program. The research took place in a transition class (a class between kindergarten and first grade for students who are not mature enough for first grade but who do not need to repeat kindergarten) in Knox County (Tennessee) Schools. The class was divided into two groups with seven children in each group. The letter books T and F were chosen for the research. The control group received instruction in the letter book and in traditional paper and pencil activities. The experimental group received instruction in the letter book, but they also received 20 minutes of computer instruction a day. The computer and traditional practice of the letters was done independently by the students with little or no assistance from the teacher. The following hypothesis was stated: there is no difference in learning as measured on the teacher created pre-test and post-test between the children in a transition class who had used the computer software as a supplement to the regular reading curriculum and those transition students who had not used the computer software, at the 0.05 level. Statistically there was no difference between the control and the experimental group in the pre-test scores, thus proving that the two groups were equal at the beginning of the study. Post-test scores were analyzed and differences between the two groups were not statistically significant. (Contains 18 references and 2 tables of data.) (RS)

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ED 432 736

A STUDY OF THE USE OF READING SOFTWARE IN THE CLASSROOM

An Action Research Project

Presented to the

Department of Teacher Education

Johnson Bible College

In Partial Fulfillment

of the Requirement for the Degree

Master of Arts in Holistic Education

By

Terri L. Sawyer

July 20, 1999

CS 013 656

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ABSTRACT

Educational technology has become popular in the classroom over the last few years. Educators, businesses, and parents are beginning to value the importance that educational technology can add to the classroom. The question at hand is whether educational technology can add any value to the classroom experience.

The research contained within this study focused on using technology to supplement a phonics based reading program. The research took place in a transition class in Knox County Schools. The class was divided into two groups with seven children in each group. The letter book T and F were chosen for the research. The control group and experimental group data was combined to make a control group numbering 14 and an experimental group numbering 14. The control group received instruction in the letter book and in traditional paper and pencil activities that has been used to teach reading for many years. The experimental group also received instruction in the letter book, but they also received 20 minutes of computer instruction a day during the length of the study. The teacher offered instruction only in the letter book. The computer and traditional practice of the letters was done independently by the students with little or no assistance from the teacher. If there was any assistance given by the teacher the entire class was given the information.

The following hypothesis was stated:

There is no difference in learning as measured on the teacher created pre-test and post-test between the children in a transition class who had used the computer software as a supplement to the regular reading curriculum and those transition students who had not used the computer software, at the 0.05 level.

The data was collected through a teacher made pretest and posttest. All of the students were tested on the same day with the pretests being given before letter book instruction began. The letter T post-test was given between the letter book T and the letter book F and then the post-test for the letter F was given after the instruction for letter book F. The data was then given a percentage value and analyzed using the computer software SPSS. A t-test was run on the data. Statistically there was no difference in the pretest scores, thus proving that the two groups were equal at the beginning of the study. The post-tests were also statistically analyzed and found to not be statistically significant. The null hypothesis was retained. This hypothesis stated that there would not be a statistical significant difference of .05 between the control group and experimental group.

APPROVAL PAGE

This Action Research Project by Terri Sawyer is accepted in its present form by the Department of Education at Johnson Bible College as satisfying the Action Research Project requirements for the degree of Master of Arts in Holistic Education.

Chairperson, Examining Committee

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July 26, 1999
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A STUDY OF THE USE OF READING SOFTWARE IN THE CLASSROOM

An Action Research Project
Presented to the
Department of Teacher Education
Johnson Bible College

In Partial Fulfillment
of the Requirement for the Degree
Master of Arts in Holistic Education

by
Terri L. Sawyer
July 20, 1999

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Chapter 1

INTRODUCTION

Significance of the Problem

Some educators as a way of enhancing a student's ability to learn to read see the use of reading software and technology in the classroom as enriching. This study is important because technology and computers are becoming more and more prominent in the elementary school classroom. Balajthy states that "Though the level of popularity of computer-based instruction in reading may vary, few doubt that computers have won a permanent place in the reading classroom" (Balajthy, p.55). Educators are seeing the importance of using educational technology in meaningful learning experiences. When computers were first introduced into the classroom they were used for drill and practice. With the advancements in technology the quality of the computer and the opportunities that it offers have become numerous.

Not only are computers becoming more and more visible, but also the government is becoming more and more assertive about what classroom teachers should be doing with the technology. Technology within the classroom is being partially funded by business and government, and these people want to know that their money is going to good use. Even though technology has been said to be important, there are people who question the use of computers in an educational setting. They wonder if using computers in the classroom gives students an advantage over other students who have no access to technology in the classroom. Some of these people believe that it is better to use the traditional curriculum supplied by the state or local board of education and leave the computers in the home setting.

Statement of the Problem

This study examined the possibilities of technology enhancing a phonics based reading program in a transition classroom. The transition class was in an elementary School in East Tennessee. In schools throughout East Tennessee there are 21st Century classrooms that contain at least five computers and several other pieces of computer hardware and software that students use for learning exercises. This transition class was a 21st Century classroom and used technology on a regular basis. The use of technology was not a new introduction for these students. They had the opportunity to work on the computers daily during their morning work, when their work was completed, during recess, and when it was time for learning centers. This study considers whether the use of technology enhanced the student's learning of reading.

Definition of Terms

There are several terms used in this study that may be unfamiliar or may be used in a manner that is not the common usage of the term. The following terms are those terms that are important for the understanding of the research conducted within this paper.

A transition class is a class between kindergarten and first grade. Transition is an opportunity for students to keep advancing even though they are not quite ready for first grade. A school system in East Tennessee developed the transition class in the system to help students who are too young and immature for first grade and who do not need to repeat kindergarten. This offers students the advantage of having an additional year to mature and prepare socially before advancing to first grade. The transition class is not designed for students with behavior problems or those students who are behind academically in the classroom. The placement is based on the maturity of the student. The

parent, transition teacher, kindergarten teacher, curriculum generalist, when the child's birthday comes during the year, and the principal help to determine whether the student would benefit from being a transition student.

Beginning to Read, Write and Listen was the curriculum used for reading instruction in the transition class. Macmillan published this particular curriculum. This distinctive reading curriculum was a phonics based reading program. There were 24 books in the series. For each letter the students received a workbook to work daily in. There were pages that the student read from, wrote on, and listened to. There was a book for each letter of the alphabet, the exceptions to this were the letters K and Q which were combined and X and Y which were also combined. This series eventually builds the student to where they have the ability to read simple sentences.

In this study, reading software pertained to the computer software designed to supplement the reading curriculum. The software that was used in this research was Kid's Time Deluxe published by Great Wave Software, Jump-Start Kindergarten published by Knowledge Adventure, Reading Blaster published by Davidson, Alphabet Express for Macintosh published by School Zone, and Curious George Learns Phonics published by Houghton Mifflin interactive. The software focused on letter recognition, sounds the letters make, and letter sounds contained within words. This reading software allowed students additional time to practice their letters.

Limitations of the Study.

There were only fourteen students that were subjects in the study, and the small number of students involved limited this study. In order to compensate for the small number of students in the study, there was an experimental group and control group with two different letter books. Each student had the opportunity to be a part of the experimental and the control group. The study was further limited because there was not a

random placement of students within the transition class. Students were placed in this class with a purpose in mind. With only having a limit of fifteen students in a transition class; parents, school administrators and teachers have placed the students in transition based on behavior and abilities shown before and during their kindergarten year. Another limitation of this study was the possibility of bias due to the fact that the researcher did all of the teaching. The teacher compensated for this limitation by offering no additional help to students who used the computers or to those doing the other traditional activities to reinforce letter learning. The teacher only actively taught students during the teaching time of the letter book. One final limitation that was present during the study was the fact that the letters studied could not be specified within the reading software. The games on the reading software covered several letters. There was not a way for the teacher to go into the commands of the software and specify which letters of the alphabet for the software to concentrate on. In order to assist not to make this a further limitation the teacher assigned additional work for the control group that covered several letters of the alphabet not just the specific letter being covered during the letter book.

Assumptions Made Throughout the Study

An assumption made was that, even though there was no way to specify which letters were being taught in the software, the letter being studied during the teaching time of the letter book also was taught in the software. The mixing of other letters from the alphabet in the reading software did not interfere with the learning of letter F or letter T. A second assumption made was that the teacher was not biased in her teaching of the regular reading curriculum or the reading software. All students were introduced to the reading software at the same time and received the same letter book instruction. After the introduction of the reading software the students did not interact with the teacher during

their time on the computer except to answer questions about how the software ran. Then the teacher told the class as a whole, the answer so that everyone could benefit during their time at the computer.

Hypothesis

Hypothesis: There was no difference in learning as measured on the teacher created pre-test and post-test between the children in a transition class who had used the computer software as a supplement to the regular reading curriculum and those transition students who had not used the computer software, at the 0.05 level of significance.

Chapter 2

REVIEW OF RELATED LITERATURE

Throughout society, technology has been changing and adapting. Gradually technology has moved from the business community to the educational community. One author predicts, "technology will be used extensively in schools. That much is inevitable" (Mehlinger, p.407). This has been a slow and laborious process. Throughout the literature on computers and their benefits or disadvantages in the classroom, there is a lot to be said. Very little of what is written is actual research on reading in the classroom, but it seems that everyone has something to say about using technology. Technology is sometimes seen as good and sometimes seen as bad, but Topping has said,

> Just because it is electronic does not necessarily make it better or less expensive or easier or more reliable. At this stage much is speculation. Let us not assume that our speculations are true or factual in the absence of proper data--or let our prejudices divert us from seeking proper evidence. (Topping, p.15)

The Issue of Time

Not only is the cost of the equipment a factor in determining the use of technology, but the cost of time for the teacher is an issue as well. Time is precious to a teacher and every time technology is used there is time taken up as well.

One of the major consumers of time when using computers in the classroom is choosing and using software. Previewing software takes time and sometimes, due to the slowness of the computer and the sequencing of the software, it could take more time than is available. Not only is previewing the software time consuming, but so is choosing the software. Case says, "Given the abundance of software available from publishing companies for supplementing the teaching of reading, selecting worthwhile software is

an overwhelming and time-consuming job" (Case, p. 1). The teacher is expected to integrate the software into the lessons and to plan how students will use the software. This becomes time consuming very quickly. Leu says, "Multimedia environments will increase, not decrease, the central role of teachers in orchestrating learning experiences" (Leu, p.162). Because of the time factor,

> Some teachers are skeptical or have no confidence in computers. This is probably due to the fact that they see an endless software world, including the most sophisticated and attractive applications that all too often have no clear relation to the teacher's daily work. Teachers wonder how they could adapt this sophisticated software to their teaching style and to their students' needs. (Bornas, Servera, & Llabres, p.37)

Computer Software

When discussing reading and the integration of the computers into the curriculum it is important to remember the software and the role that it will play during the student's learning. Computer software can be used positively or indifferently in the classroom. Herrington & Oliver have said this about computer software, "They provide the means to create stimulating and interactive teaching and learning episodes with computer technology delivery" (Herrington and Oliver, p. 2).

Case evaluated several pieces of software and their effectiveness in the classroom along with reading instruction. She states her purpose as being, "to examine commercially available computer software in order to ascertain its degree of congruency with current methods of reading instruction at the first and second grade levels" (Case, p. x). She took twenty-seven pieces of software and put them through three phases of evaluation. The software was evaluated inside the classroom as well as outside the classroom. Her study was to assist educators to: "use computer technology in a way that will promote positive student learning in the area of reading and complement what is

currently known about reading instruction through the development of an assessment tool" (Case, p. 2). The author of this research article does not take into consideration how the students use the software, instead she considers what the software has to offer to the classroom.

In the first stage of her research she sent surveys to educators, including schools, teachers, and technology specialists. From these surveys she hoped to gain information on what was expected to come from the use of this software in the classroom. Stage two involved choosing the software for review. She began with fifty titles and eventually narrowed the list down to ten for in depth review. She did a preliminary review of software titles to find which titles would fit the study. The third stage was to design an evaluation instrument to use with the software. The final stage of the study was to evaluate the software and report which software titles could make an impact on reading curriculum (Case, p. 36).

This study did identify what educators and professionals in the field of educational technology deem to be important. The survey results were written as follows:

> The survey reveals that many educators value software that is motivating can be used independently by children, and reflects/practices curriculum and teaching strategies that are presented in the classroom. Additionally, educators commonly consider software that offers clear pronunciations of words and activities utilizing authentic text to be worthwhile. Remaining items address issues of using computers for the unique features they have to offer, such as providing interaction and individualizing instructions. (Case, p. 69)

The researcher also successfully established a checklist for educators to evaluate reading software that they may want to use in their classroom. Within her report was an explanation of the ten titles reviewed and how they rated on her checklist that was established to assist educators in their evaluation. This explanation included the intended

grade level, description, publisher, strengths, and weaknesses (Case, p. 70).

This study relates to the research being done in this paper because software had to be chosen that would provide meaningful learning experiences. Case stated, "The effectiveness of computer based reading instruction is partially dependent on the software that is chosen for student use" (Case, p. 97). The importance of this research is to understand how the teacher who chooses the software for her or his classroom needs to make wise and informed decisions that will be the best for the students involved. Case gave teachers some assistance to make these choices easier. Students vary from class to class so it is not appropriate to say that one piece of software will always be better than another piece of software, but the teacher is responsible to make the choice about software that would be best for her classroom.

Computer software has done many things in education. Like other areas of education, technology software is also changing. Norton and Resta analyze it when they write,

> At the height of the computer literacy debate, emphasis shifted to the role of the computer as a tool and a method for teaching problem solving. Most recently, attention among computer educators has turned to yet a third phase which addresses issues related to computer applications in support of the curriculum. (Norton and Resta, p. 35)

Technology and Student Learning

Norton and Resta conducted a study of students in a summer school program in Albuquerque Public Schools. They stated this as their purpose: "Since reading instruction is one of the mainstays of the elementary curriculum, this study was designed to discover what the cumulative and interactive effects of using selected categories of computer software on elementary students' reading performance were" (Norton & Resta, p.40). The students that were in this study were students who were in third, fourth, fifth, and sixth

grade. Eighty-seven percent of the students had participated in federal programs for low-achievers. There were eleven Computer Reading classes that had been filled, consisting of 102 students. (Norton & Resta, p. 36).

The students took a pretest during the first three days of summer school. The students were then divided into three groups. Each group concentrated on a different type of computer software. The first group concentrated on problem solving. They received instruction for 12 ½ hours with computers and the other 12 ½ hours of instruction was spent with a graduate student in traditional reading instruction. The second group also received 12 ½ hours in traditional reading instruction taught by a graduate student. The other 12 ½ hours of instruction was spent working with computer software that concentrated on skills. The final group also received 12 ½ hours of traditional reading instruction and 12 ½ hours of computer instruction that concentrated on simulation software. The researcher then compared three groups with one another. After the comparison analysis was made through the use of ANCOVA. The results came back as:

> In all areas tested (reading vocabulary, reading comprehension, and problem-solving ability), those students entering the fourth, fifth, or sixth grade profited more from instruction supplemented by problem-solving and simulation software than from instruction supplemented by more traditional skills instruction.... The research results suggest that skills instruction alone does not represent the most effective method for reading instruction. (Norton & Resta, p. 40)

According to this research there are benefits to be made from using problem solving and simulation software to assist in the teaching of reading (Norton & Resta).

Kulik and Kulik did a meta-analysis on the effects of technology in the area of reading instruction. The data for their analysis came from three sources. These sources came from a previous meta-analysis done by the authors, by searching databases, and by branching off from bibliographies in research they had already located. These methods

concluded with a total of 254 pieces of research. The instrumental outcome that was used most often in these pieces of research for measurement was student learning. For statistical purposes the authors analyzed each outcome and coded the outcome with an effect size score. The research outcome varied proportionately along with the amount of time the research had been conducted (Kulik & Kulik). The results of these studies varied, but according to the meta-analysis these were the results:

> We conclude, therefore, that the typical student in an average CBI [computer based instruction] class would perform in the 62nd percentile on an achievement examination, whereas the typical student in a conventionally taught class would perform at the 50th percentile on the same examination. Put in another way, the average student from the CBI class would outperform 62% of the students from the conventional classes. (Kulik & Kulik, p. 80)

Hamilton conducted a study in the Chicago public school system. She hypothesized, "Achievement was expected to rise because of the computer's capacity to submerge the student in information using a variety of modalities" (Hamilton, p. 2). She wanted to know what the effects of using computer-assisted instruction would have on reading instruction of third through sixth grade students. Her study consisted of 69 students all of these students scored stanine scores of three or below. Forty-one of the students had received instruction in computers before and twenty-eight had not. She used a t-test at a .05 level of significance to determine if there was any statistically significance in the mean scores. Her study turned out to prove the null hypothesis. The reading scores in this study were not affected by the use of the computer (Hamilton, p.9).

Teachers and Computers

Teachers depend on technology. Technology also depends on teachers in order

for the learning to be effective. Teachers have several responsibilities when using technology.

In order for technology to be an asset in the classroom, the teacher needs to direct the students and to sufficiently plan the software. Teachers have to supervise students in education even on the computer. Salomon, Globerson, & Guterman state in their article on computers assisting in metacognition that, "However, in the absence of guidance, little is provided that could be internalized and thus leave transferable cognitive residue" (Salomon, Globerson, and Guterman, p.621). Teachers play a vital role in directing students in the classroom with technology.

One way that teachers direct students is through the integration of curriculum and technology. Teachers have turned this into a fine art. McCullough stated this about using technology for remediation, "Computers can teach and remediate reading skills; however, generalization of these skills off the computer must be planned and integrated into the teaching methodology" (McCullough, p.437). A student is more likely to remember what he or she is working on and studying if the material on the computer has been related to the regular curriculum. Integration is a key with technology; the students must have the connection in the brain in order to put it to use,

> Further, teachers need to relate the work the students do on computer systems to their teaching rather than have students work in isolation on programs never intended to stand alone. (MuCullough, p. 427)

Technology cannot be effective without the teacher taking control of the technology within the classroom and finding a way for technology to work together with the class. Technology can add a great deal to the classroom, but it can also be a large distraction if

it is not used correctly and effectively. The teacher has a responsibility to see that it is used in such a way. McCullough gives a few guidelines when using technology:

> In order for an integrated learning system (ILS) to be effective, Wiburg (1995) suggests several components are necessary: (a) adequate time on the system, (b) teacher involvement, (c) curriculum integration, (d) staff development, (e) accommodation of heterogeneous student needs, (f) incentives, and (g) quality instruction. (McCullough, p. 427)

Benefits of Technology to the Student

Technology is ultimately there for the student's use and benefit. Balajthy states it this way: "It is what the medium does-the teaching-that influences learning. Is a computer more effective than a workbook for drill and practice in word recognition?" (Balajthy, p. 58). There are numerous ways that a student's education can be improved through the use of the computer. Some of these benefits include a different medium, individualization, fun and active learning for active students, a connection between school and home, and the advantages that technology gives to a student with learning disabilities.

The first example of a benefit to the student is that technology gives students one more medium that creates another learning experience:

> Children can see any strategy as many times as they need, and the likelihood of distraction is lower if the child is seated in front of the computer than if her or she is looking at the teacher in a classroom with 20 more children (Bornas, Servera, & Llabres, p.32).

The computer is another way for a student to see something done and demonstrated. While Balajthy says that computers are more effective there are others who say that using technology may not necessarily be better but different. In the article titled *Internalizing Reading-Related Metacognitions,* this is described:

> This study was designed to test the general hypothesis that intellectual partnership with a computer tool that provides reading-related, metacognitivelike guidance, which, in turn, facilitates better text comprehension and transfers to writing

> ability. The study's hypotheses were supported, which suggests that a computer tool can serve as a "more capable peer" in a learner's zone of proximal development and can thus facilitate the development of competency. (Salomon, Globerson, & Guterman, p. 625).

This article showed that by using the computer the student was given one more way of seeing something being done.

Computers also offer the ability to individualize education for a student. There are many ways for this to take place in the classroom:

> In expanding the learning environment to include data bases, computer networks, and other library resources throughout the world, the internet makes is possible to shape their own education. Once the easy accessing protocols are learned, the student can dive into these resources in the comfort of his/her home and/or library without the constant supervision and intervention of the teacher. (Ediger, p.9)

There are ways for a teacher to individualize software and the use of the computer that will benefit the student (Topping, p. 3)(Bornas, Servera, & Llabres, p. 32)(Leu, p. 163). When the learner is using the computer there is the ability for the learner to have more control over what he is learning. This allows the learner to proceed at his or her own rate (Balajthy, p. 62).

The use of computers also makes for an enjoyable and fun learning environment for a student. Hamilton says, "It is hoped that computer use will inspire children turned off by traditional paper and pencil methods achieve at levels beyond those currently demonstrated" (Hamilton, p.2). This could be especially beneficial for a student who is difficult to reach or really does not enjoy school in any way. When teaching reading the goal should be, "...to guide pupils to read for personal enjoyment and utilitarian purposes" (Ediger, p. 11).

Computers can be very helpful for the active learner. Computers are very active and can go through a lot of information quickly. The computer can also do this for learners, "Active involvement in learning can help the student to understand, to

remember, and to apply the knowledge in other settings" (McCullough, p. 437). Computers also have the capability to be put away or move onto a new task with the ability to come back to the original task very easily. This can be wonderful for students with short attention spans and those students who have a difficult time focusing on the task at hand.

Computers also benefit the child and the Parent or Guardian in the fact that the computer allows for a connection to be made between the home and school. Having a computer at home and at school can lead to a transferring of skills from the child to the parent and vice versa (Topping, p. 9). There is also the possibility that students are able to have access to the classroom without having to be there at school. There are already several schools that have a "virtual school" through a listserver. Parents can keep in touch with the teacher through a touch of a button or through e-mail. Computers are becoming a part of everyday life in the home, school, community, and business world.

Computers also offer assistance to students who suffer from learning disabilities. One example of this was mentioned by Topping, "For children with reading difficulty, computer-based diagnostic tests designed to identify, for example, dyslexia might offer greater objectivity an consistency" (Topping, p. 7). There are many examples of ways that the computer can assist learning disabled people, "Several devices are readily available to assist children, adolescents, and adults with learning disabilities in reading and written language. The most commonly known are word processors, spelling checkers, proofreading, or grammar checkers. These allow easy editing and corrective feedback" (McCullough, p. 428). The article *The Computer Doesn't Embarrass Me* discusses how Orange County has adopted a program to assist learning disabled students in their learning to read. They found that by using the computer with the integration of the curriculum that students were better able to learn and were less apprehensive about

reading aloud in front of the rest of the class (Hasselbring).

Socialization

Socialization is another, much talked about issue in using computers in the classroom, "Thus, computers will become tools for social interaction as well as for information exchange" (Abrami & Bures, p. 41). Computers provide opportunities for students to work together. This is done through group projects on the computers and teaching one another how to do a task on the computer (Leu, p.163).

Collaboration is an active way to use computers in the classroom. This is good for students who are not very active in discussion or very vocal (Abrami & Bures, p. 39). By using collaboration you are also initiating an environment for students to be creative in a non-threatening way. Computers offer another way for a teacher to find ways of cooperative groups in the classroom.

There are numerous benefits to the student. Often times it is a combination of all of the above benefits. The consequences of using technology can offer many opportunities to students.

Reading Instruction

Phonics instruction is a traditional method of teaching reading. This instruction concentrates on the phonetic approach to word decoding. There can be several approaches within this broad scope of instruction. This section discusses two studies that determined the need for phonics instruction of some form in the reading instruction.

Doyle conducted research on the effects of learning words according the phonics method of reading instruction versus learning words according to whole word acquisition. She states her problem as: "The present study investigates the relationship between methods of first grade reading instruction, sex of the learner, word learning proficiency and first grade reading achievement. Of particular interest is the relation of word learning

proficiency to method of instruction" (Doyle, p. 3). One hundred children participated in her study. These students were from two suburban elementary schools. These two schools were located in a white, middle class community. None of these children had formal reading instruction (Doyle, p. 4).

Each of the students were given the Weschler Intelligence Scale for Children-Revised, WISC-R, or the Peabody Picture Vocabulary Test. Doyle states, "the results suggest that subjects participating in this study were of average intelligence and the two school samples were comparable in regard to verbal ability and reading potential" (Doyle, p. 5). The first school taught a sight method of beginning reading instruction, and the second school taught reading using a phonic approach. The students received instruction during the second and third week of school. Each session was planned and was 12 minutes of instructional time. This instructional time was followed by review and testing. The regular classroom teachers taught the rest of the year according to either whole word acquisition or phonic approach depending on the school they were teaching at (Doyle, p.11).

Two standardized achievement tests were given at the end of the first grade year to assess reading achievement (Doyle, p. 7). In order for the data to be analyzed the researcher conducted a three-way multivariate analysis of variance (Doyle, p. 9). This resulted in the following conclusion: "Reading achievement for students receiving instruction by the phonic method was significantly higher than that of students in the sight program" (Doyle, p. 9). This phonic approach did improve a student's ability to recognize words, but this did not necessarily mean that it improved their comprehension. This study showed that a phonic approach enabled learners to better recognize words as a skill, but it did not say anything about comprehension or the desire to become a life long reader.

Clarke conducted research that investigated the benefits of using a phonics based reading program. She conducted her study in a rural community school. Her subjects were students from two first grade classrooms. Each class had 26 students in it with an age range of 6-7 years old. This school was mainly a whole language school; "Whole language approach had been practiced and had been very effective in helping students realize the importance of reading and to encourage pleasure reading. However, decoding skills and word analysis had weakened considerably" (Clarke, p. 10). She saw the need for an improvement in reading skills when the California Test of Basic Skills scores were much lower than the national average percentile (Clarke, p.5).

The writer had three objectives she desired to accomplish with this study. First, she wanted 40 out of 52 students to master 24 out of 30 skills on a teacher made test. Second she wanted 40 of the 52 students to master 80% of all skills on the three 1-2 text magazine tests. Her final objective was for 40 out of 52 students to provide an oral or written solution to a real life story problem (Clarke, pp. 12-13). Objective one was accomplished with 43 out of 52 students mastering the phonic skills. Objective two was not successfully attained. Objective three was not obtained (Clarke, p.39).

This study was conducted over a period of 12 weeks. There was instruction in phonics and comprehension problem solving (Clarke, p. 29). In order to insure that students had equal instruction they received 30 minutes of instruction three days a week with two days concentrating on phonics instruction and one day concentrating on problem solving techniques (Clarke, p.29).

When the writer met objective one she stated, "The writer of this practicum concluded that phonetic instruction should be a part of the reading instruction at the first grade level" (Clarke, p. 24). She also found out, "The writer was convinced that direct instruction of both phonics and comprehension skills would be conducive to a successful

reading program" (Clarke, p. 25). She still found out that the need for phonics instruction was important and vital for beginning readers to be successful readers.

Electronic Literacy

The research that has been done on literacy education and the use of computers has shown an advantage and better literacy performance. One study showed computer applications to have a positive effect on students' academic achievement from elementary school to college (McCullough, p.426). In the article *Using Computer Technology to Monitor Student Progress and Remediate Reading Problems,* there are many other studies cited that show how the use of computers has shown an improvement in the reading abilities of students.

Literacy and computers is a young topic relatively compared to other subjects in the classroom. With the development of the World Wide Web, there are many changes that are happening very rapidly through out electronic literacy. There are many changes yet to take place, and the use of computers in reading is wide open for change. There are many people and educators who are attempting to put this into practice, but like anything else in education it all takes time.

Chapter 3

METHODS AND PROCEDURES

Subjects of the Study

The subjects of the study were students from a transition class at an elementary school in East Tennessee. This transition class was composed of three girls and eleven boys. The transition students were six years old. The students came from many different socio-economic backgrounds with six of the students on free lunch programs and other students from affluent families. There were also many different family structures within the class including students from single parent homes, remarriages, two parent homes, and those living with extended family. These students also came from a wide variety of cultural backgrounds.

Timeline for the Study

This research took approximately three weeks. One letter book was taught during the first week and a half of the research. During this time seven of the students participated in time spent on the computer. The second letter book was then taught during the second week and a half, and the other seven students were then placed on the computer. The two letters involved were "T" and "F."

Details of the Pre-test and Post-test

There was a pre-test and a post-test given to each student at the beginning of each letter book and at the end of each letter book. This test was teacher created and the same test was given after the instruction of the letter book as was given before the instruction. See appendix A for a copy of the test. The same teacher gave the pretest to all fourteen students in two days time. The test was comprised of fifteen questions dealing with the letter T or F. The test contained questions asking the student to identify a written letter

and its sound. This was done for both the capital and lowercase letter. The letter identification was done by looking at only the letter and also by identifying the letter out of a group of four letters. There were also questions that asked the student to identify the picture that began with the letter sound as well as to identify a picture that contained the sound of the letter within the word. Another question asked the student to write the letter and to draw a picture of something that began with the letter sound. This fifteen-question test had the student identify all aspects of the letter T or letter F.

Experimental Factors

The experimental factor was the use of computer software for reading instruction. The students who were part of the experimental group interacted with the computer software for twenty minutes a day for four or five days. Some of the work was done independently and some of the work on the computer was done with a partner. The exact number depended on the attendance of the student. With each letter book half of the students, the control group, received instruction in the letter book and did hands-on games and other paper and pencil practice with the other letters of the alphabet. During this time the other half of the class, the experimental group received instruction in the letter book and then had opportunity to practice their letters on the computer. While the experimental group was on the computer the control group participated in an independent activity at their desk and floor space. Some of these activities included a collage of pictures that began with the letters already covered in the previous letter books, letter bingo, flip books, and word concentration. Because the computer software did not cover just the specific letter being studied the work for the control group was not just geared to the letter being taught at the time. Both the experimental group and the control group did not receive help from the teacher during student's time of independent practice. This was

an independent activity for the student to do by himself or herself. At the end of the first letter book the group that was the control group became the experimental group and the experimental group, became the control group. Between these two letter books the post-test for letter T was given to all of the students. The post-test for letter F was given after letter book F was finished.

Statistical Analysis of Data

After the data were collected and the pre and posttests scored. The data between the posttests was compared, and the mean difference in the scores was analyzed statistically by the use of the t-test.

Chapter 4

RESULTS

Analysis of data

The data were collected and then entered into a table in the computer program SPSS. This was done to analyze the data for statistical purposes. The researcher then ran a paired sample t-test on the data. According to the t-test run on the pretests there was not a statistical significance in the tests. This t-test showed that when the two groups began there was not a statistical difference between them. See table 1 for the results.

TABLE 1

Comparison of Pretests Means of Control and Experimental Groups

Groups	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. 2-tailed
Control	14	79.9286	-3.4286	2.8951	-1.184	.258*
Experimental	14	83.3571				

*Not Significant

There was not a statistical significance of the results from the posttest. There was no statistical significance to show there was a benefit to supplementing the reading curriculum with computer education. See table 2 to represent the data of the post-test.

TABLE 2

Comparison of Post-test Means of Control and Experimental Groups

Groups	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. 2-tailed
Control	14	84.2857	2.4286	3.1600	.769	.456*
Experimental	14	81.8571				

*Not Significant

Acceptance of Hypothesis

The hypothesis stated there is no difference in learning as measured on the teacher created post-test. This test was given between the children in a transition class who had used the computer software as a supplement to the regular reading curriculum and those transition students who had not used the computer software, at the 0.05 level of significance. There was no statistical difference between the two groups of students. The hypothesis was retained.

Chapter 5

SUMMARY, CONCLUSIONS, RECOMMNEDATIONS

Summary

The research contained within this study focused on using technology to supplement a phonics based reading program. The class was divided into two groups of seven children for each group. The letter book T and F were chosen for the research. The control group and experimental data were combined to make a control group numbering 14 and an experimental group numbering 14. The control group received instruction in the letter book and in traditional paper and pencil activities that has been used to teach reading for many years. The experimental group also received instruction in the letter book, but they also received 20 minutes of computer instruction a day during the length of the study. The teacher offered instruction in only the letterbook. The computer and traditional practice of the letters was done independently by the students with little or no assistance from the teacher. If there was any assistance given by the teacher the entire class was given the information. The data were collected through a teacher made pretest and posttest. All of the students were tested at the same time with the pretests being given before letter book instruction began. The letter T post-test was given between the letter book T and the letter book F and then the post-test for the letter F was given after the instruction for letter book F. The data were then given a percentage value and analyzed using the computer software SPSS. A t-test was run on the data. Statistically there was no difference in the pretest scores, thus showing that the two groups were not

statistically significant at the beginning of the study. The post-tests were also statistically analyzed and found to not be statistically significant. The null hypothesis was retained. This hypothesis stated that there would not be a statistical significant difference of .05 between the control group and experimental group.

Conclusions

In this study there was not a statistical difference in the use of computer software for the use of teaching versus the traditional techniques for teaching reading. During the time the study took place, the students were enthusiastic about using computers and they were gaining practical experience using their letters and learning how to read.

Computers can have the potential to make a significant difference in the education of children. This could be with students more mature, students studying different subject areas, possibly in different learning situations, or students that were in a different grade in school. Computers add to the education of a student when the technology is added in a manner that can be a productive learning experience for the student. If students have the opportunity to use technology in a meaningful way rather than just using technology for fun and games the benefits of using technology in education can have great effects.

Recommendations

The study of the use of computers in education should be done again. The number of subjects should be considered if the study is to be done. It is the opinion of the researcher that the small number was a disadvantage to this study. Another consideration

to be made was that the length of this study was short. The time of this study was only three weeks. In previous studies the length of the study was considerably longer. In this study there was not a statistical significance in the impact of computers, but an impact was made on the students about using computers. The students enjoyed their time on the computer and enjoyed the software that was used. They often asked for more time during recess and free time available through out the day. There was not a formal assessment done of the student's attitudes. In a future study a formal assessment of the student's attitudes might prove to be profitable to the use of computers in teaching children.

There are some questions to consider and ask when thinking of adding technology to the classroom. Do computers have a difference in the other areas of curriculum? Are teachers using technology for meaningful learning or is the use of computers just another added burden for a teacher to find time to teach? There are many subjects and areas to be explored with the use of technology in the classroom. Is there a difference to be made when multimedia is being used in the classroom? Another one of these questions might be how the teacher is using the technology and what she is doing to add this technology to the classroom. These all might be areas that could be explored to see if students would benefit for them in education.

Technology needs to be integrated into the curriculum for meaning. Computers being taught independently from other subjects does not give students a connection with the other subjects that are being taught in the classroom. The research that had been done in the past often concentrated on teaching computers independently of other learning

techniques. A recommendation for further teaching would be to integrate the teaching of computers with other subjects instead of independent teaching. The teaching of computers should not be any different than any of the other subjects. It is vital that educators teach students how to use computers and use them for meaningful purposes. Students should see that computers are a part of society and that they can be used in meaningful ways in any situation, not just in the business world.

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APPENDICES

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Allen Morgan, Superintendent

September 30, 1998

Ms. Terri Sawyer
Johnson Bible College Box 777-582
Knoxville, Tennessee 37998

Dear Ms. Sawyer:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "Study of the Use of Reading Software in the Classroom." In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted.

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless *specific* permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Samuel E. Bratton, Jr.

Samuel E. Bratton, Jr., Ed.D.
Coordinator of Research and Evaluation
Phone: (423) 594-1740
Fax: (423) 594-1709

Project No. 915

BEST COPY AVAILABLE

Parents,

I was very sorry that I missed you at the parent meeting. Unfortunately, I was called to Ohio on a family emergency. I was planning on telling you about this exciting research that I get to do for my masters degree with Johnson Bible College. In my research project I would like to find out if using computers would help your child to learn their letters and their sounds easier. I need your permission in order for your child to participate in this activity. Please sign below if you will give me your permission.

Thank you,
Terri Sawyer

Guardians Signature _____

Test for the Letterbook "F"

1. Show the student the capital "F" and ask, "What letter is this?"	Right___ Wrong ___
2. Show the student a group of four letters and ask the student, "Will you please choose the letter "F" from these letters."	Right___ Wrong ___
3. Show the student a group of four letters and ask the student, "Will you please choose the letter "F" from these letters."	Right___ Wrong ___
4. Show the student a group of four letters and ask the student, "Will you please choose the letter "f" from these letters."	Right___ Wrong ___
5. Show the student a group of four letters and ask the student, "Will you please choose the letter "f" from these letters."	Right___ Wrong ___
6. Show student the lower case "f" and ask student, "What letter is this?"	Right___ Wrong ___
7. Show the student the capital F and ask the student, "What sound does this letter make?"	Right___ Wrong ___
8. Ask student, "Please tell me three words that begin with the letter F."	Right___ Wrong ___
9. Show the student a series of four pictures and ask the student, "What picture begins with letter F"	Right___ Wrong ___
10. Show the student a series of four pictures and ask the student, "What picture begins with letter F"	Right___ Wrong ___
11. Show the student a series of four pictures and ask the student, "What picture begins with letter F"	Right___ Wrong ___
12. Ask the student, "Will you please write the letter F."	Right___ Wrong ___
13. Ask the student, "Will you please draw something that begins with the letter F."	Right___ Wrong ___
14. Show the student a series of three pictures and ask the student, "What picture contains the sound that the letter F makes?"	Right___ Wrong ___
15. Show the student a series of three pictures and ask the student, "What picture contains the sound that the letter F makes?"	Right___ Wrong ___

Test for the Letterbook "T"

1. Show the student the capital "T" and ask, "What letter is this?"	Right___ Wrong ___
2. Show the student a group of four letters and ask the student, "Will you please choose the letter "T" from these letters."	Right___ Wrong ___
3. Show the student a group of four letters and ask the student, "Will you please choose the letter "T" from these letters."	Right___ Wrong ___
4. Show the student a group of four letters and ask the student, "Will you please choose the letter "t" from these letters."	Right___ Wrong ___
5. Show the student a group of four letters and ask the student, "Will you please choose the letter "t" from these letters."	Right___ Wrong ___
6. Show student the lower case "t" and ask student, "What letter is this?"	Right___ Wrong ___
7. Show the student the capital T and ask the student, "What sound does this letter make?"	Right___ Wrong ___
8. Ask student, "Please tell me three words that begin with the letter T."	Right___ Wrong ___
9. Show the student a series of four pictures and ask the student, "What picture begins with letter T"	Right___ Wrong ___
10. Show the student a series of four pictures and ask the student, "What picture begins with letter T"	Right___ Wrong ___
11. Show the student a series of four pictures and ask the student, "What picture begins with letter T"	Right___ Wrong ___
12. Ask the student, "Will you please write the letter T."	Right___ Wrong ___
13. Ask the student, "Will you please draw something that begins with the letter T."	Right___ Wrong ___
14. Show the student a series of three pictures and ask the student, "What picture contains the sound that the letter T makes?"	Right___ Wrong ___
15. Show the student a series of three pictures and ask the student, "What picture contains the sound that the letter T makes?"	Right___ Wrong ___